



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,017	01/10/2002	Marko Loncar	Q136	8172

7590

07/22/2003

Daniel L. Dawes  
Myers, Dawes & Andras LLP  
19900 MacArthur Blvd, Ste 1150  
Irvine, CA 92612

EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/044,017

Applicant(s)

LONCAR ET AL.

Examiner

Sung H. Pak

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 10 and 23-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

All references submitted in the information disclosure statement have been considered by the examiner.

### ***Claim Objections***

Claims 23-26 are objected to because of the following informalities: The claims recite "the method of claim 1", however claim 1 is an apparatus claim. The claim dependencies should be changed to claim 14. Appropriate correction is required.

Claims 10 and 23 are objected to because of the following informalities: the claims recite "a first set of holes" and "a second set of holes." However these recitations were previously stated in the independent claims. The recitations should be changed to "said first set of holes" and "said second set of holes." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8-9, 13-17, 20-22, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurosawa (US 6,134,369).

Kurosawa reference was cited in the information disclosure statement.

Kurosawa reference discloses an optical device with all the limitations set forth in the claims, including: a planar photonic crystal slab in which an array of holes is defined (Fig. 2); a waveguide defined by a line defect defined in the slab (Fig. 3); the line defect created by a geometric perturbation of at least a first set of holes with respect to a second set of holes to create at least one guided mode of light propagation in the waveguide which exhibits reduced vertical and lateral losses (abstract); increased coupling of light into the slab (abstract); the geometric perturbation being a positional displacement of the first set of holes with respect to the second set of holes in a predetermined direction (Fig. 2-3); the first and second set of holes having same diameters (Fig. 2).

Claims 1, 10-12, 14, 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Cotteverte et al (US 2002/0048422 A1).

Cotteverte et al reference was cited in the information disclosure statement.

Correverte et al reference discloses an optical device with all the limitations set forth in the claims, including: a planar photonic crystal slab in which an array of holes is defined (Fig. 21); a waveguide defined by a line defect defined in the slab, the line

Art Unit: 2874

defect being created by a geometric perturbation of at least a first set of holes with respect to a second set of holes to create at least one guided mode of light propagation in the waveguide which exhibit reduce vertical and lateral losses, increased coupling of light into the slab, and closer matching of frequencies of eigen modes of the optical device coupled to the waveguide (paragraph 0019-0025); the geometric perturbation being created by increasing or decreasing the diameter of the first set of holes in the array relative to the second set of holes comprising the remainder of the array (Fig. 21, 25I).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-7, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosawa (US 6,134,369).

Kurosawa discloses an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly specify positional displacement values. However, it is well known in the art to determine optimal positional displacement values for guiding light signals with minimal optical loss. Therefore, it would have been obvious to a person of ordinary skill in the art to arrange the set of holes in Kurosawa device to reflect optimal positional displacement values. It would be desirable to have an optical device with a minimal optical loss.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (703) 308-4880. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Application/Control Number: 10/044,017  
Art Unit: 2874

Page 6



Sung H. Pak  
Examiner  
Art Unit 2874

sp  
July 12, 2003



HEMANG SANGHAVI  
PRIMARY EXAMINER